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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,598	07/09/2003	Johannes Wilhelmus Maria Krikhaar	081468-0304785	8285

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EXAMINER

NGUYEN, HUNG

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,598

Applicant(s)

KRIKHAAR ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure should be carefully reviewed and ensure that any and all grammatically, idiomatic, and spelling or other minor errors are corrected. For example, on page 10, line 10, reference to “camp” should read --clamp--. Correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 3, the recitation of “wherein an unimageable portion of the substrate is a peripheral portion about 3 mm wide” is vague and indefinite. The meaning, breadth, and scope of the terms “unimageable portion” are unclear and ambiguous.

With respect to claim 5, the recitation of “the plate member....optionally has one or more flats or notches” is vague. The recitation that an element optionally has (a) specific structure(s) is not a positive limitation and it does not constitute a limitation in any patentable sense.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 5, 7-8, 11-17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Reiss (U.S.Pat. 6,258,228).

With respect to claim 1, Reiss discloses a substrate holder (10) comprising all basic features of the instant claim including: a plate member (12) having a first nominal size receivable by a lithographic apparatus; and a clamp (11) constructed and arranged to hold a substrate (17) of a second nominal size on the plate member, the second nominal size being smaller than the first nominal size (see col.5, lines 15-29) and a vacuum chuck for holding the substrate (see col.5, line 23).

As to claim 2, Reiss further teaches the clamp is adapted to hold the substrate around substantially an entire periphery of the substrate (see abstract).

As to claim 5, Reiss teaches that the plate member (12) is circular and has notches/or flats (as illustrated in figure 2).

As to claim 7, Reiss further discloses the plate member (12) has one or more positioning pins (14) located such that when the substrate (17) is abutted against the one or more positioning pins the substrate is located at a predetermined positions and orientation on the plate member.

As to claim 8, the plate member (12) has one or more flats or notches (figure 2) and the one or more positioning pins (14) are located such that the one or more flats of the substrate are in a predetermined, corresponding orientation to the one or more flats/notches of the plate member (see col.5, lines 1-17).

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As to claims 11-17 and 20, the method claims are seen to be inherent teachings in existence of the above apparatus.

6. Claims 1, 4-5, 11-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Komiya (2002151439).

With respect to claims 1, 4-5 and 11-14, Komiya teaches a substrate holder and corresponding method, comprising all of the structures set forth in the instant claims including: a plate member (1) having a first nominal size receivable by a lithographic apparatus, and a clamp ring (2) constructed and arranged to hold a substrate of a second nominal size on the plate member, the second nominal size being smaller than the first nominal size (see fig.1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss (U.S.Pat. 6,258,228) in view of Malhi (U.S.Pat. 5,441,991).

As to claim 4, Reiss discloses a substrate holder comprising substantially all of the limitations of the instant claim. Reiss teaches the substrate holder (10) includes the plate member to hold a semiconductor wafer (17) but does not disclose the wafer being a silicon wafer. However, silicon wafer is well known in the art. For example, Malhi teaches a silicon

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wafer (20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the substrate holder of Reiss for the purpose of holding the silicon wafer as suggested by Malhi.

9. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss (U.S.Pat. 6,258,228).

With respect to claim 3, Reiss teaches a substrate holder comprising substantially all basic features of the instant claim as discussed. Reiss does not expressly disclose “the unimageable portion of the substrate is a peripheral portion about 3mm wide” (see claim 3). As the best the claimed subject matter is understood (see rejection under 35 U.S.C. 112, second paragraph, *supra*), it is the Examiner’s position that it would have been obvious to a skilled artisan to determine the proper height of the clamp ring (11) of Reiss so that the shadow of the clamp ring to the projection beam can be of 3mm and thus the clamp ring would not obstruct the projection beam.

As to claim 6, Reiss does not expressly disclose “the first nominal size is 150 mm or larger and the second nominal size is 100mm or smaller”. However, Reiss further suggests that “for clamping a 150mm wafer, the ring (12) has an inner annular surface (25) against which the edge of the wafer (17) rests when it is being held by the holder 910). The housing 11 has an opening 15 in its center that is larger than the wafer (17) that is held in the holder (10)” (see col.5, lines 15-25) or “the inner diameter of the disc is preferably about five centimeters less than the outside diameter of the wafers to be clamped” (see col.3, lines 1-3). In view of such teachings, it would have been an obvious matter of choice to determine the size of the first and

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second nominal sizes and it has been held that discovering an optimum value or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. It would have been obvious to a skilled artisan to select the plate member of Reiss with the first nominal size of “150mm or larger” and to select the clamp of Reiss to hold a substrate of a second nominal size of “100mm or smaller” so that the wafer can be held properly and thus the deformation and misalignment of the substrate during exposure operation can be prevented.

10. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss (U.S.Pat. 6,258,228) in view of Van Schaik et al (EP-1136887 A2).

As to claims 10 and 18, Reiss discloses a substrate holder comprising substantially all of the limitations of the instant claims except for “a burl pattern”. Van Schaik teaches a substrate holder which is provided a plate member that has a burl pattern in a region on which the substrate is to be held (see col.9, lines 1-2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a burl pattern onto the plate member of Reiss so that the substrate is held without being slid.

11. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reiss (U.S.Pat. 6,258,228) in view of Kassir et al (US 2003/0211813A1).

As to claims 9 and 19, Reiss discloses substantially all of the structures of the instant claims except for the clamp having a ring of magnetic material and a plurality of magnets fixed to the plate member for holding the substrate. This structure, however, is well known per se. For example, Kassir et al discloses a substrate holder having a clamp with a ring of magnetic

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material and a plurality of magnets (32) fixed to a plate member for holding the substrate magnetically (see paragraph 1142 and fig.3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the clamp as suggested by Kassir into the substrate holder of Reiss for the purpose of holding the substrate magnetically in proper position during processing .

Prior Art Made of Record

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

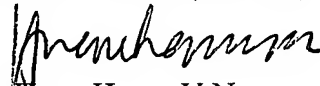
Mulligan et al (U.S.Pat. 6,164,633) and Derbinski et al (U.S.Pat. 5,820,329) discloses substrate holder, and have been cited for related art.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hung Henry V. Nguyen
Primary Examiner
Art Unit 2851

hvn
3/26/04